



# INSTRUCT-O-GRAM

## THE HANDS-ON TRAINING GUIDE FOR THE FIRE INSTRUCTOR

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### Engine Company Operations – Part II

#### TASK

The instructor will deliver the basic concepts of engine company operations. The focus of this drill is to allow the student to develop an improved understanding of the various water-related tasks involved in a firefighting operation and how they are to be implemented on the fireground.

#### INTRODUCTION

The student should have a basic understanding of their role in the fire department, and the role they are to play during firefighting operations. In order to better participate in the fireground operation, the student should have an understanding of what strategy is and how they fit in to the scheme.

They will receive information that will allow them to develop an understanding of the important role that fire department engine companies play during firefighting operations.

#### COURSE OUTLINE

1. Some guidelines to assist in hoseline selection.
2. Some guidelines on the use of master stream devices
3. Some tips on hoseline placement.
4. Some tips on hoseline advancement.

#### PERFORMANCE OBJECTIVES

Our review of the **National Fire Protection Association Standard 1021, Standard for Professional Fire Officers Qualifications** makes absolutely no reference to the actual conduct of firefighting operations. They make great mention of how to manage a fire, how to establish command, how to transfer command and etc. However, they make no reference to a need for developing those necessary skills to conduct a firefighting operation.



## PRESENTATION OUTLINE

### *Guidelines on Hoseline Selection*

What are your options for the use of hoselines?

- ◆ ¾" to 1¼" booster lines (attack)
- ◆ 1½" attack lines
- ◆ 1¾" attack lines
- ◆ 2" attack lines
- ◆ 2½" attack lines
- ◆ 3", 4", 5" and 6" supply lines

Modern attack hand lines have flows ranging from 50 to 350 gallons-per-minute (GPM). Booster lines **are not** recommended for fire attack. They have an insufficient flow to provide an adequate level of fire attack safety.

It is extremely important to carry a sufficient quantity of each type of hose. This will allow you the necessary flexibility to mount a variety of different sized fire attacks. If you do not have enough hose to reach the nearest water source, your attack will fail. If your hose is too small, this will cause your attack to fail. Both of these can have strong negative consequence for your troops.

### *Guidelines on Nozzle Selection*

In order to deliver the required amount of water to accomplish your strategic and tactical goals, your personnel must select the proper nozzle for the task at hand.

Your choices may come from among the following:

- ◆ Adjustable
- ◆ Constant flow regardless of pattern
- ◆ Straight stream
- ◆ Solid bore

Factors affecting your choice of nozzle:

- ◆ Flow rate needed
- ◆ Reach required
- ◆ Cooling capacity needed

- ◆ Stream power to drive the water to the places it must reach

You must be aware of the capabilities of each type of nozzle. This can only be done through the mechanism of continuing training. You must determine the standard capabilities of your various hose and nozzle combinations. But knowing the capability of the weapons in your arsenal, you will be better equipped to battle our common enemy: Fire.

### *Some Tips on the Use of Master Streams*

We would describe a **master stream** as any fire stream that is too large or powerful to be directed without mechanical assistance. Would you really want your firefighters to struggle with a hoseline that is flowing 500 gallons-per-minute (GPM) at 100 pounds-per-square inch (psi) of pressure?

The various types of **master streams** in use today are:

- ◆ Elevated streams – both fixed and portable (manual or automatic)
- ◆ Monitors – fixed or portable
- ◆ Turret pipes – permanently affixed to the fire department pumper
- ◆ Deluge sets
- ◆ Deck guns

Many of the different names actually refer to similar devices, but we have included them all to meet the differing needs of our readers across America and throughout the world. Great strides have been made in decreasing the weight of these various devices.

The monstrous brass devices that once required the deployment of a full company to position have been reduced to modern units that can easily be carried by one person. Our ability to raise and use pre-piped elevated streams has greatly improved our ability to halt the spread of fire.

It is a well recognized principle of firefighting strategy and tactics that master streams should be



located at the point of best advantage. Your decision-making factors for this are:

- ◆ Stream power
- ◆ Reach
- ◆ Volume of water
- ◆ Personnel safety

On those occasions when you are responsible for positioning master streams, you must always consider the problem of collapse zones. These devices take time to position and are not easily moved. As a minimum, you should consider a distance of 1.5 times the height of the structure.

### CLOSING REMARKS

As the Incident Commander you must approach the placement of apparatus and personnel in the same way that a chess master would set and move the various pawns, knights, queens, and

rooks in a chess game. Fireground command is not a static event. It is dynamic and continually flowing. Always be ready to move and meet the demands of your opponent: fire.

### ACKNOWLEDGMENT

This Instruct-O-Gram was created by Dr. Harry R. Carter, MIFireE, a municipal fire protection consultant from Adelphia, New Jersey. Dr. Carter is the President of ISFSI.

### INSTRUCTOR/STUDENT REFERENCES

**Firefighting Strategy and Tactics - An Eight-Step Method**, Harry R. Carter, Ph.D.

*Fire Protection Publications*, Oklahoma State University, Stillwater, OK, 1998

**Essentials of Firefighting, 4th edition**, Fire Protection Publications, Oklahoma State University, Stillwater, OK, 1998

### INTRODUCTION

The student should have a basic understanding of their role in the fire department, and the role they are to play during firefighting operations. In order to be successful in the fire department, the student should have an understanding of what strategy is and how they fit in to the scheme. They will receive information that will allow them to develop an understanding of the importance that they play during firefighting operations.

### PERFORMANCE OBJECTIVES

The purpose of the National Fire Protection Association Standard 1021, Standard for Professional Fire Officer Qualifications, is to establish a minimum standard for the fire officer. It is not a requirement that all fire officers meet this standard, but it is a goal. The standard is a guide for developing the fire officer's skills in conducting firefighting operations.